

DATA STRUCTURE OF SCRAMBLING KEY LIST DESCRIPTOR

```
CA_Ks_List_descriptor() {

descriptor_tag
descriptor_length
for(i=0; i < N; i++) {

Ks_id
TS_packet_number
Ks
}

}
```

Ks_id :SCRAMBLING KEY IDENTIFIER

(TO IDENTIFY SCRAMBLING KEYS)

TS_packet_number :THE NUMBER OF TS PACKETS SCRAMBLED

WITH THE Ks

Ks :SCRAMBLING KEY

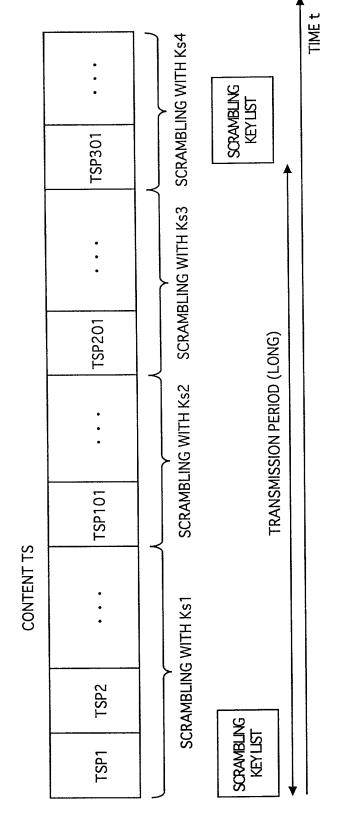
FIG. 3

SECTION CRC

STORAGE ECM SECTION HEADER 8 BYTES FIXED PORTION (SCRAMBLING KEY ETC.) 26 BYTES VARIABLE PORTION (VARIOUS FUNCTIONAL INFORMATION) TAMPERING DETECTION 4 BYTES

4 BYTES

FIG. 4



TSP:TS PACKET
Ks:SCRAMBLING KEY

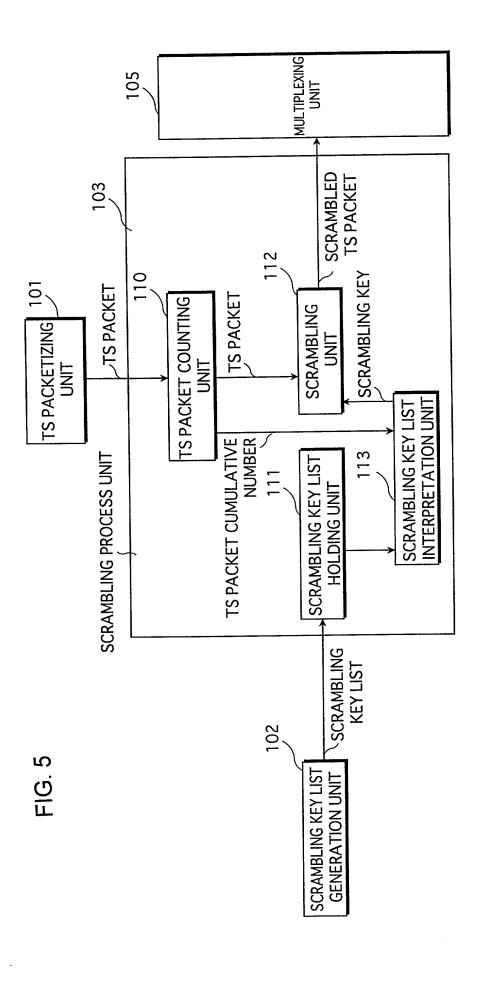
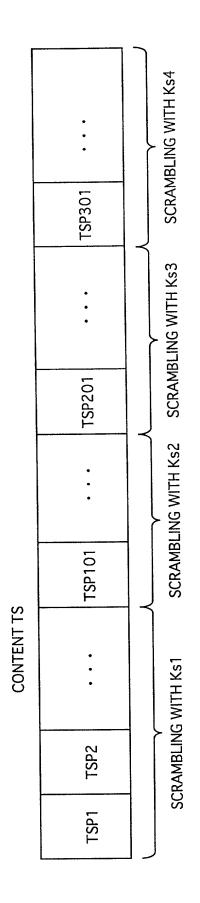


FIG. 6



TSP:TS PACKET
Ks:SCRAMBLING KEY

FIG. 7

SCRAMBLING KEY LIST

Ks_id	1
TS_packet_number	100
Ks	Ks 1
Ks_id	2
TS_packet_number	100
Ks	Ks 2
Ks_id	3
TS_packet_number	100
Ks	Ks 3
Ks_id	4
TS_packet_number	100
Ks	Ks 4



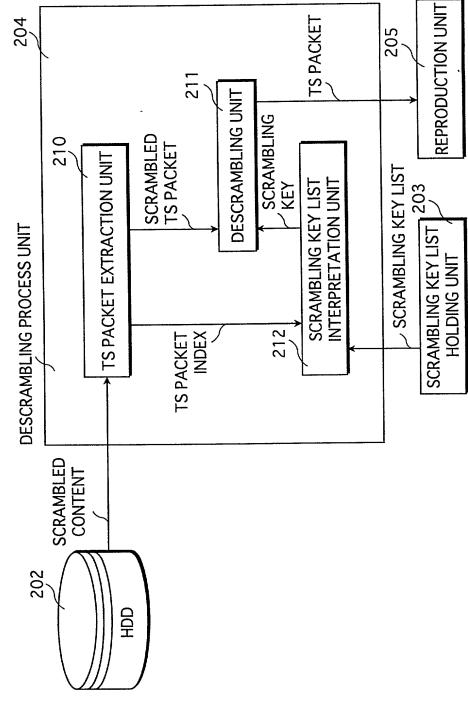


FIG. 9

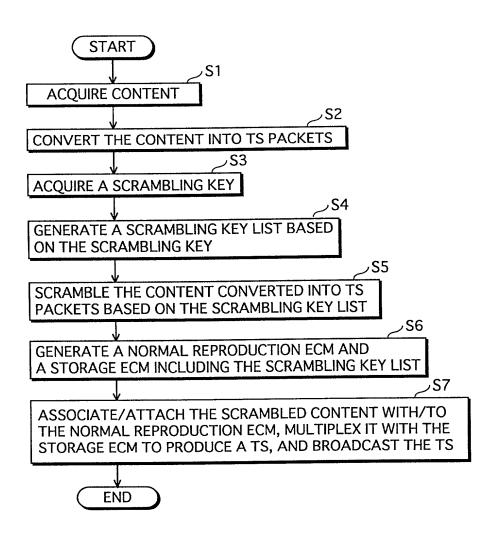


FIG. 10

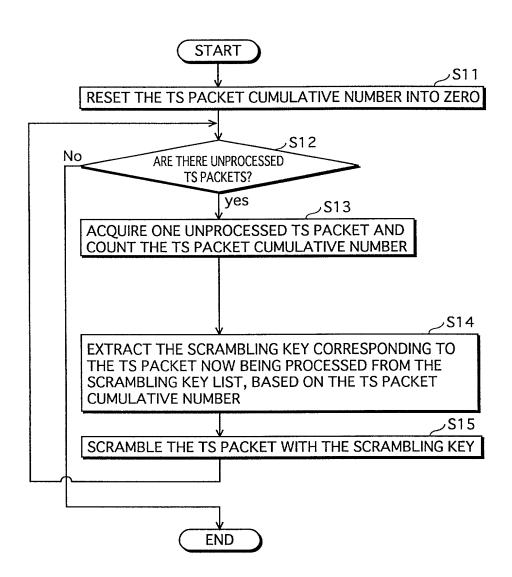


FIG. 11

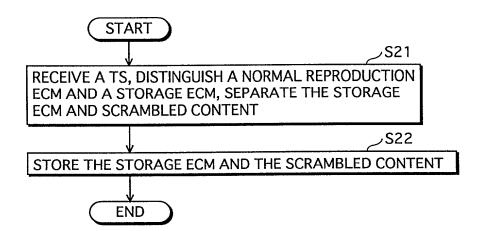


FIG. 12

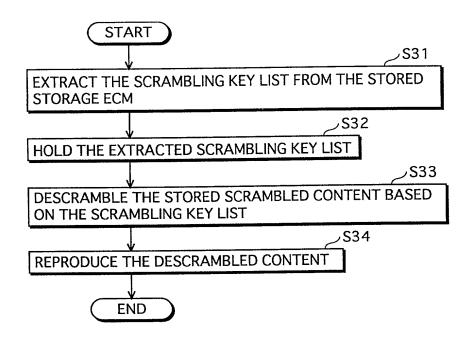
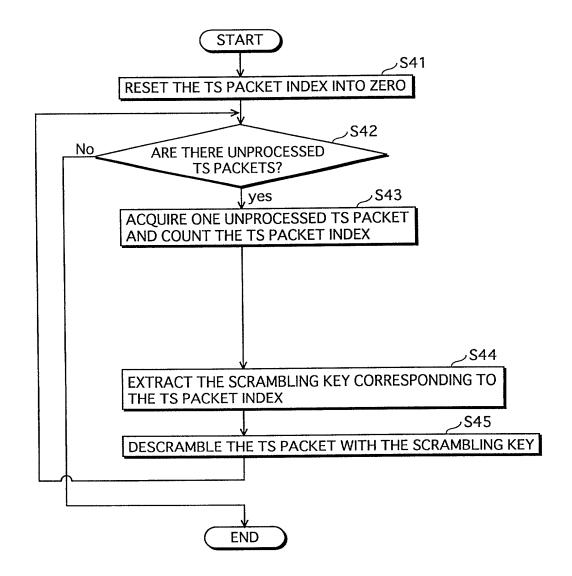
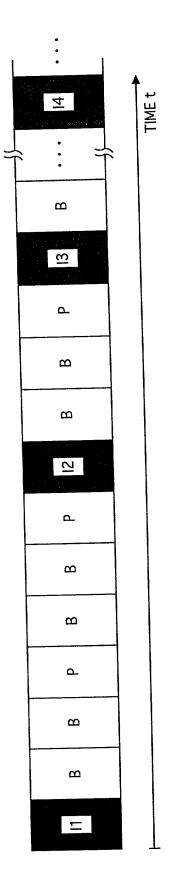


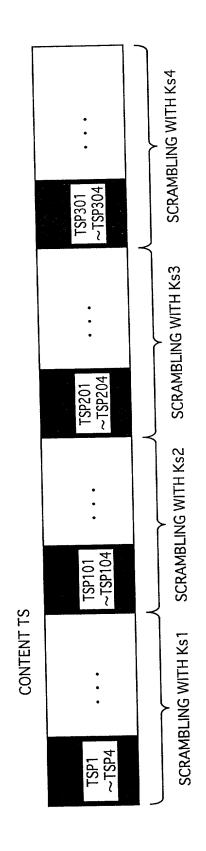
FIG. 13





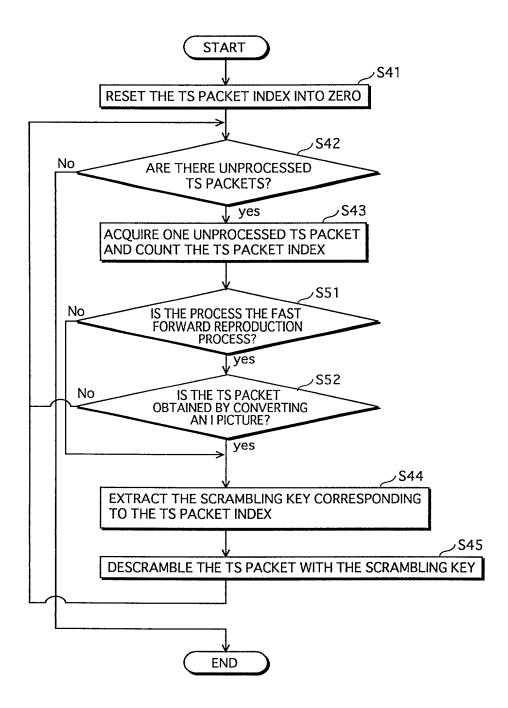
1: I PICTURE B:B PICTURE P:P PICTURE

FIG. 15



TSP:TS PACKET Ks:SCRAMBLING KEY

FIG. 16



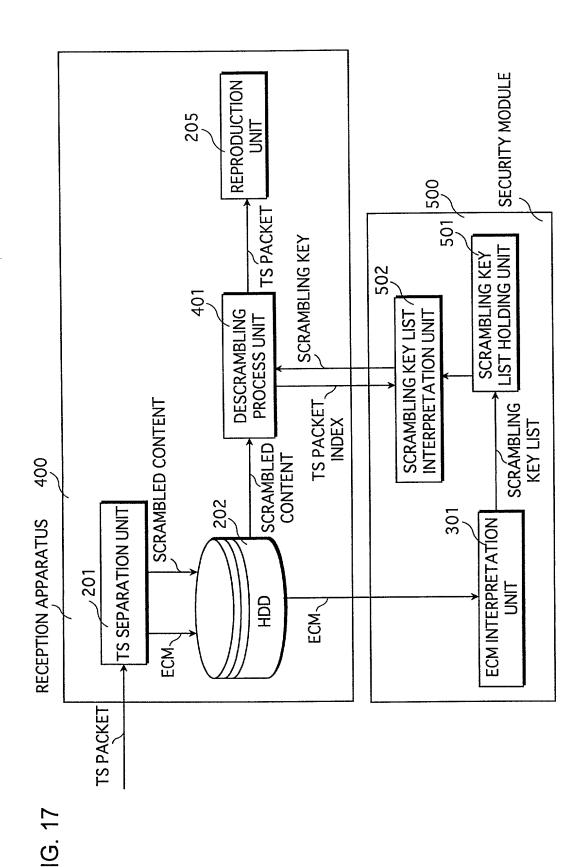


FIG. 18

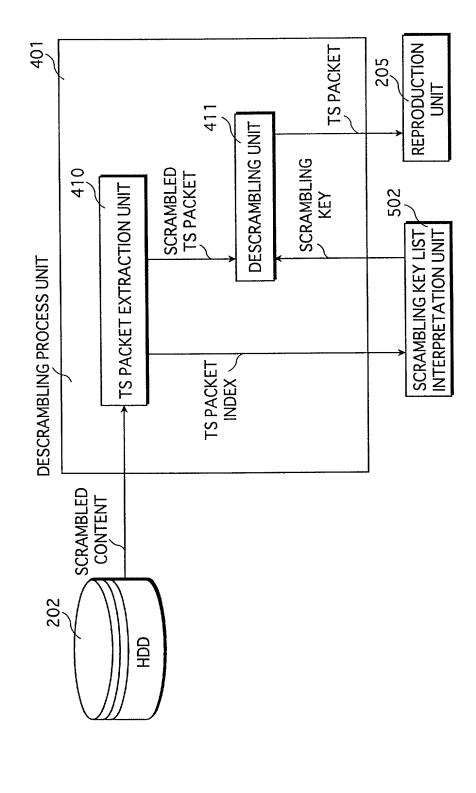


FIG. 19

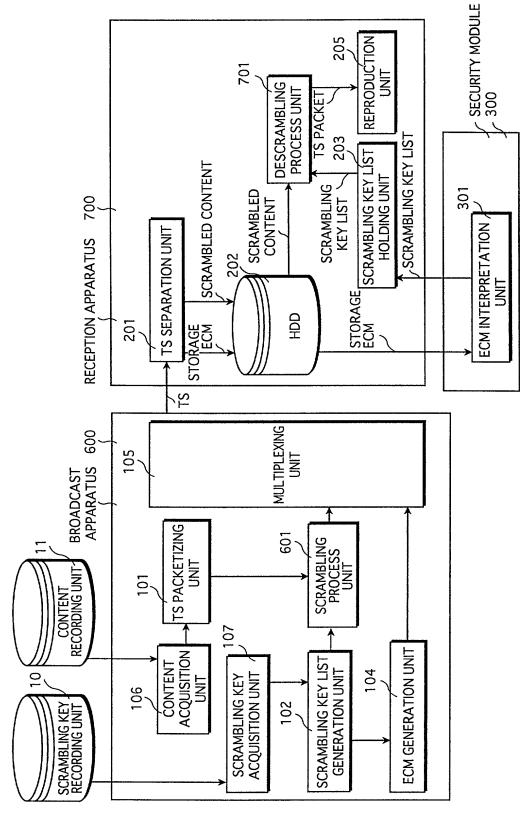


FIG. 20

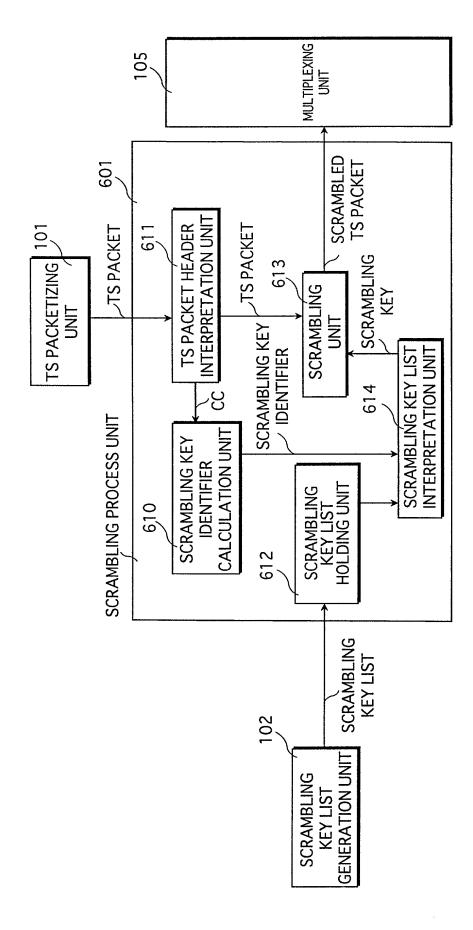


FIG. 21

SCRAMBLING KEY LIST

Ks_id	0
Ks Ks	Ks 1
Ks_id	1
Ks Ks	Ks 2
Ks_id	2
Ks	Ks 3
Ks_id	2 Ks 3
Ks	Ks 4
Ks_id	4
Ks	Ks 5
Ks_id	5
Ks	Ks 6
Ks_id	6
Ks	Ks 7
Ks_id	7
Ks	Ks 8
Ks_id	8
Ks	Ks 9
Ks_id	9
Ks	Ks 10
Ks_id	10
Ks	Ks 11
Ks_id	11
Ks	Ks 12
Ks_id	12
Ks	Ks 13
Ks_id	13
Ks	Ks 14
Ks_id	14
Ks	Ks 15
Ks_id	15
Ks	Ks 16

FIG. 22

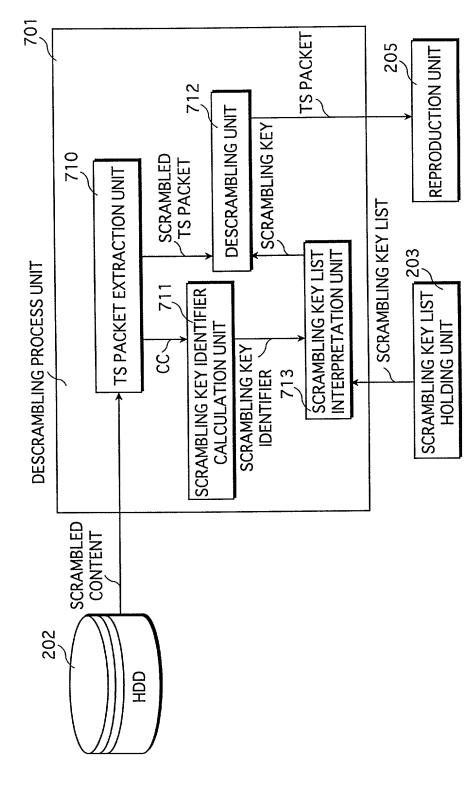


FIG. 23

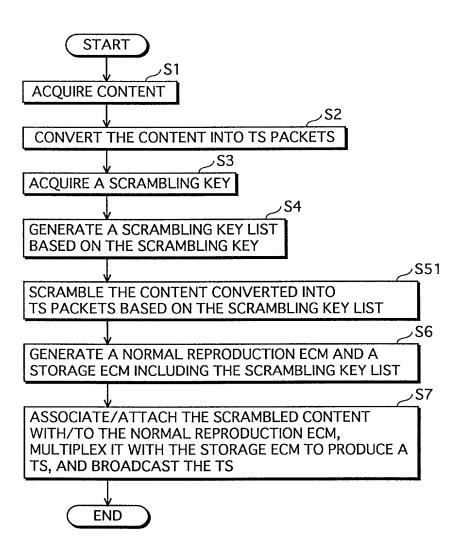


FIG. 24

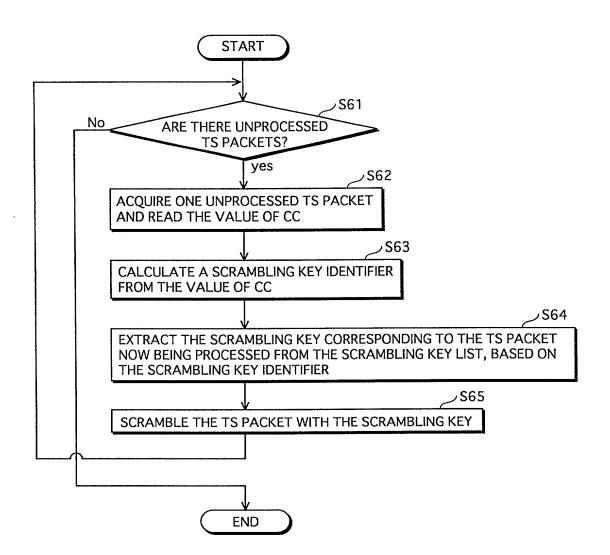


FIG. 25

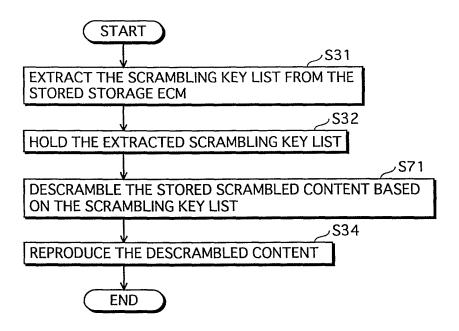
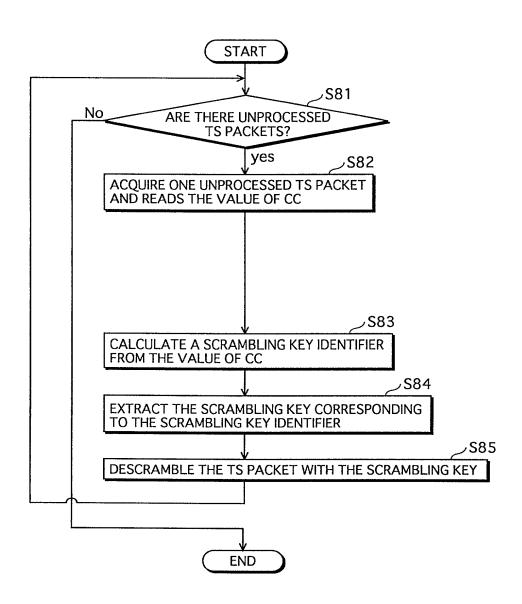
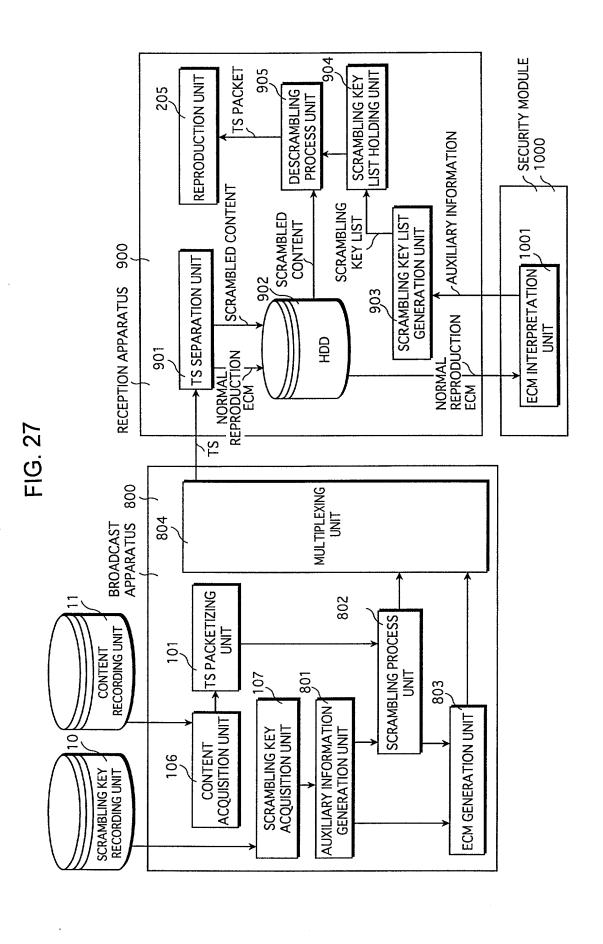


FIG. 26





DATA STRUCTURE OF SCRAMBLING KEY LIST GENERATION DESCRIPTOR

CA_Ks_ListInfo_descriptor() {	
descriptor_tag	1 BYTE
descriptor_length	1 BYTE
Ks_id	1 BYTE
TS_packet_number	2 BYTES
Ks	8 BYTES
}	

Ks_id

:SCRAMBLING KEY IDENTIFIER

(TO IDENTIFY SCRAMBLING KEYS)

TS_packet_number :THE NUMBER OF TS PACKETS SCRAMBLED

WITH THE Ks

Ks

:SCRAMBLING KEY

SECTION HEADER 8 BYTES TABLE IDENTIFIER

NORMAL REPRODUCTION ECM

FIXED PORTION (SCRAMBLING KEY ETC.)

VARIABLE PORTION (VARIOUS FUNCTIONAL INFORMATION)

TAMPERING DETECTION

SECTION CRC

4 BYTES

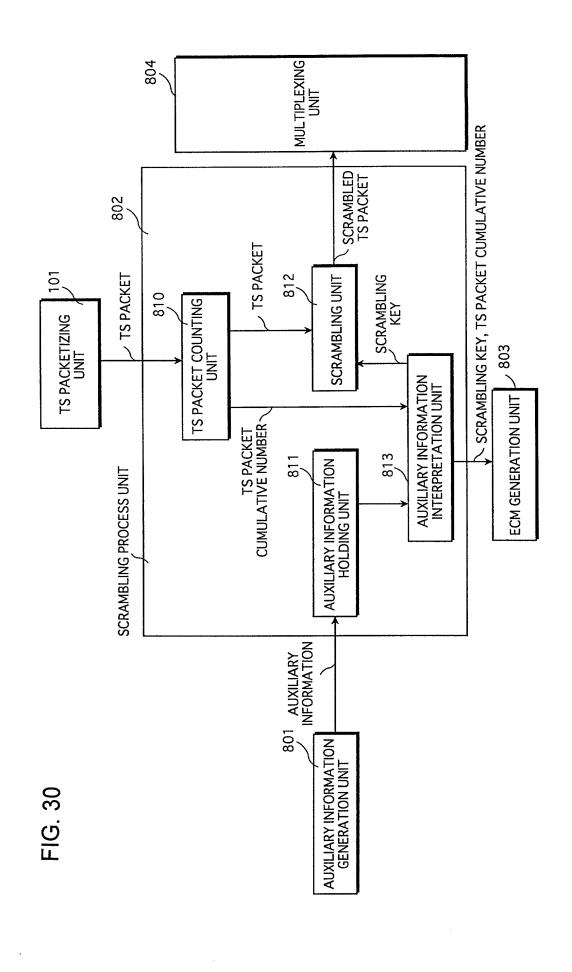
EXTENDED TABLE IDENTIFIER 2 BYTES

EXTENDED TABLE IDENTIFIER 2 BYTES

SCRAMBLING KEY
LIST GENERATION
DESCRIPTOR

4 BYTES

1 BYTE



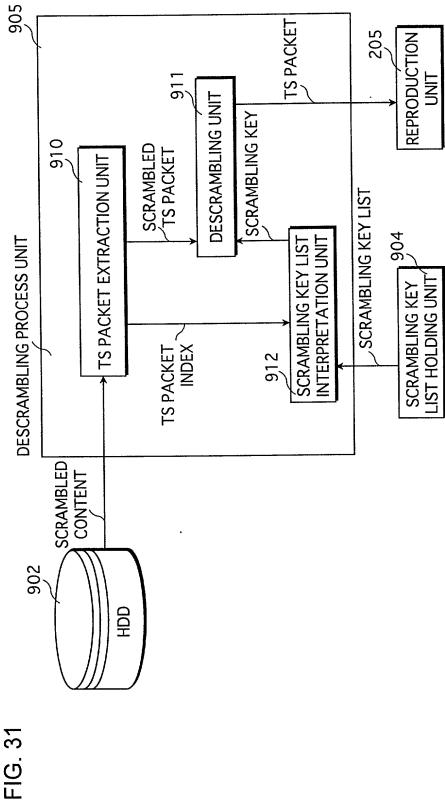


FIG. 32

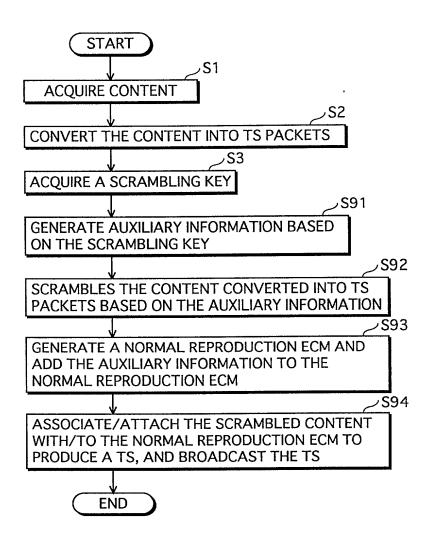


FIG. 33

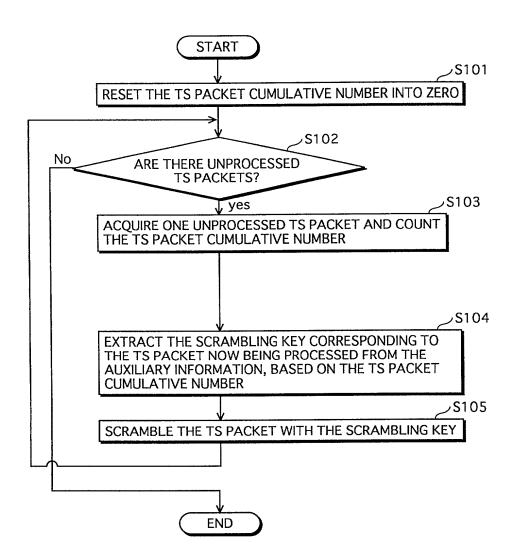


FIG. 34

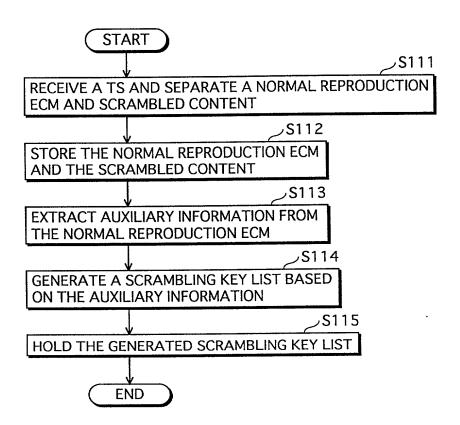


FIG. 35

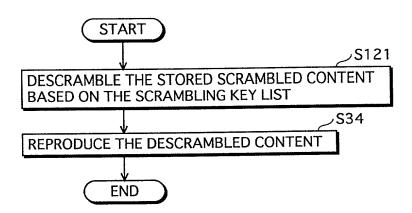
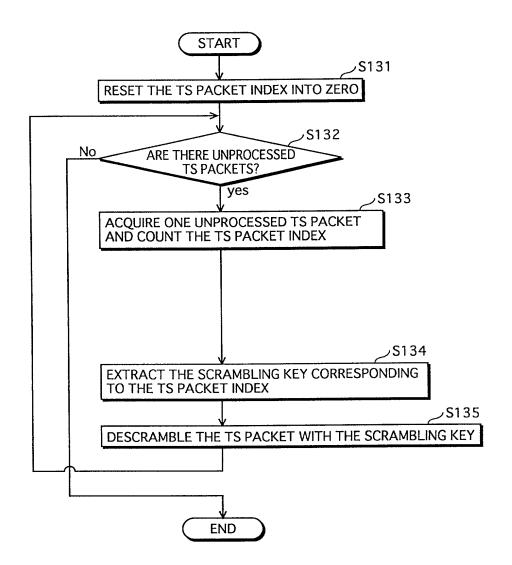
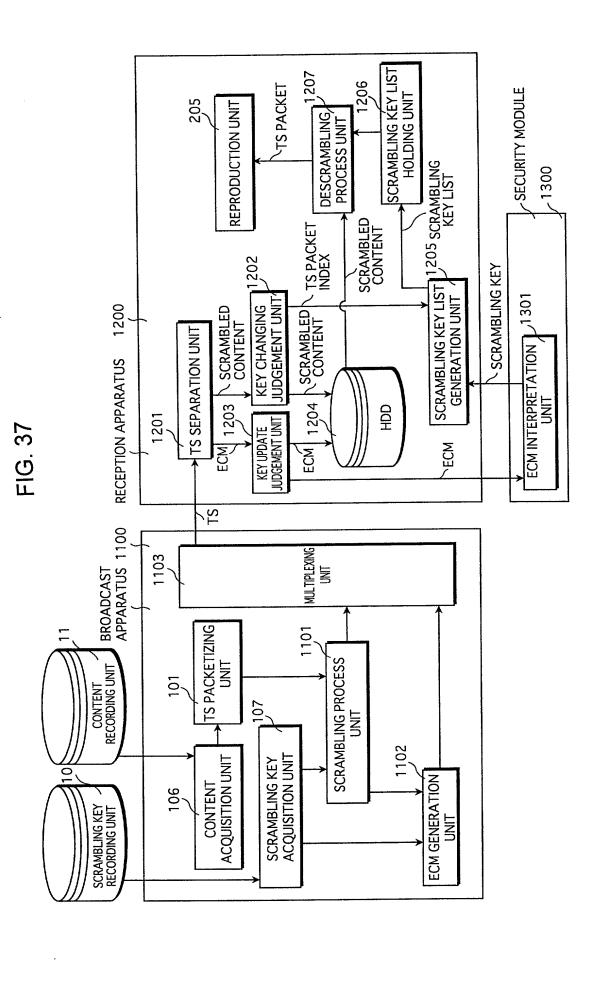


FIG. 36





- SCRAMBLING KEYS ARE CLASSIFIED INTO ODD NUMBER KEYS AND EVEN NUMBER KEYS.
 ONE ECM TRANSMITS BOTH OF THE ODD NUMBER KEY AND THE EVEN NUMBER KEY.
 WHEN UPDATING ECM, EITHER ODD NUMBER KEY OR EVEN NUMBER KEY IS UPDATED.

CONTENT TS

ECM

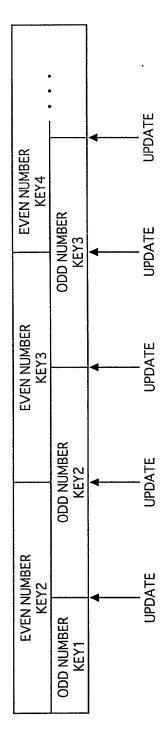
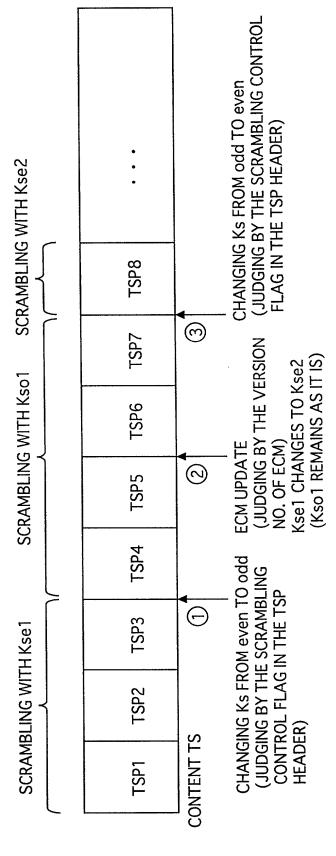


FIG. 39



TSP: TS PACKET

Ks: SCRAMBLING KEY

Kse: SCRAMBLING KEY (EVEN NUMBER KEY) Kso: SCRAMBLING KEY (ODD NUMBER KEY)

SCRAMBLING CONTROL FLAG

γ				
SCRAMBLING DESCRIPTION FLAG VALUE	NOT SCRAMBLED	NO DEFINITION	SCRAMBLED (EVEN NUMBER KEY)	SCRAMBLED (ODD NUMBER KEY)
SCRAMBLING FLAG VALUE	00	01	10	11

FIG. 40

SCRAMBLING KEY LIST AT THE TIMING OF ① IN FIG. 39

KS_id

TS_packet_number

Ks_id

TS_packet_number

Ks_id

TS_packet_number

Ks

SCRAMBLING KEY LIST AT THE TIMING OF (3) IN FIG. 39	THE TIMING OF (3) IN FIG. 3
Ks_id	
TS_packet_number	က
Ks	Kse 1
Ks_id	2
TS_packet_number	41
Ks	Kso 1
Ks_id	3
TS_packet_number	
Ks	Kse 2

UNDERLINED INFORMATION IS ADDED.

AT THE TIMING OF (2) IN FIG. 39, THE SCRAMBLING KEY LIST IS NOT UPDATED, BUT STORED ECM CHANGES AS FOLLOWS.

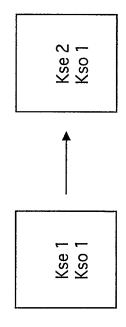


FIG. 41

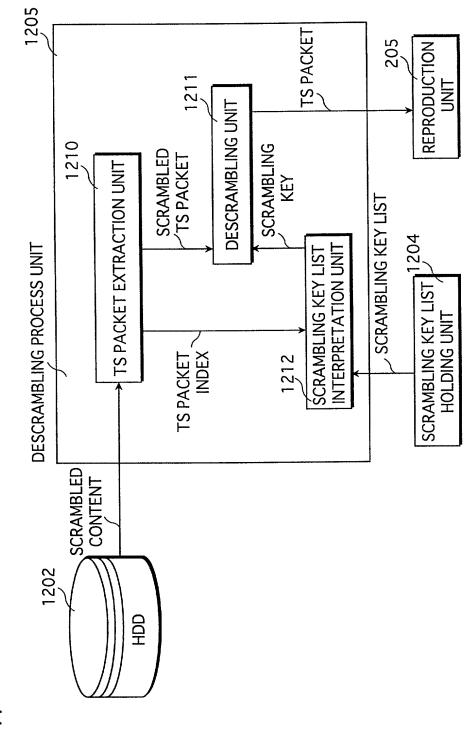
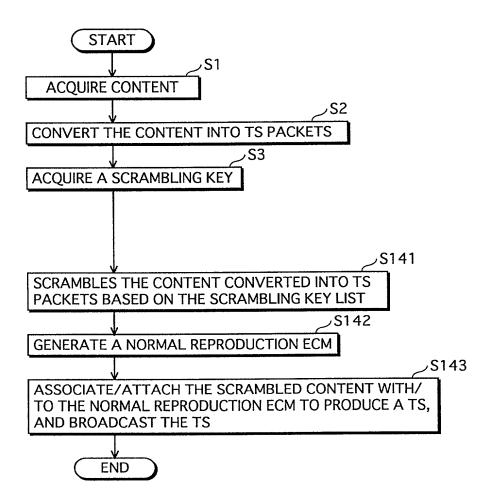


FIG. 42



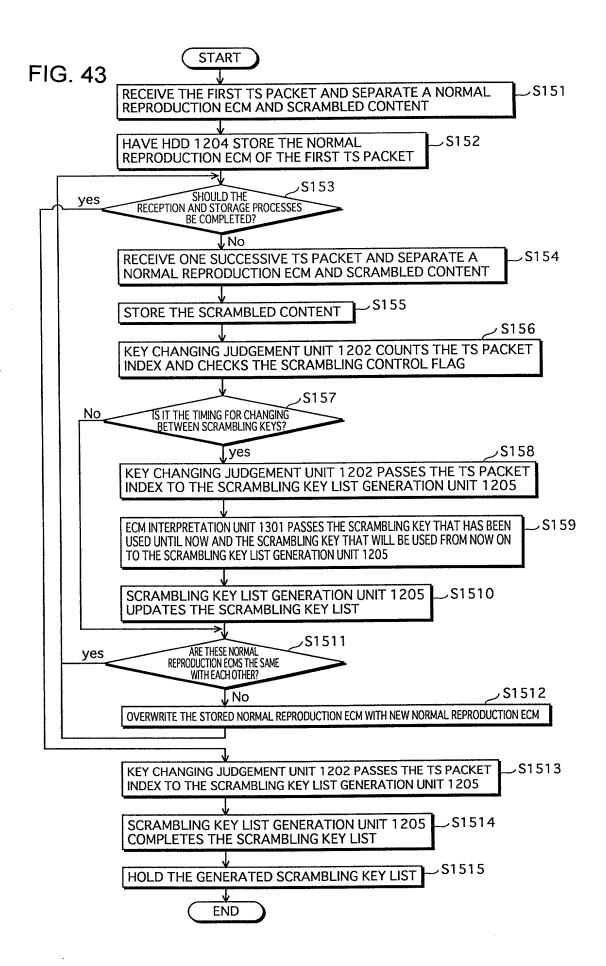


FIG. 44

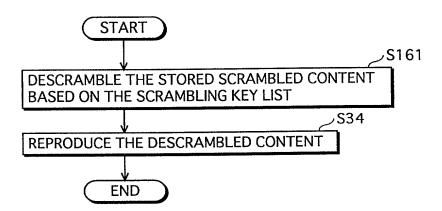
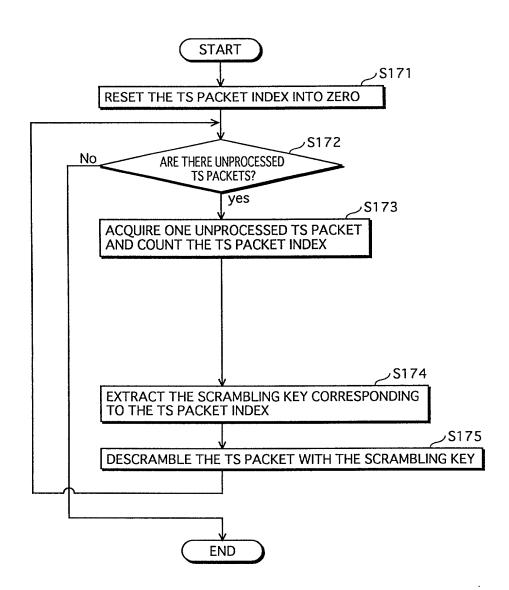


FIG. 45



DATA STRUCTURE OF I PICTURE LIST DESCRIPTOR

for(i=0; i <n; first_packet_position="" i++)="" last_packet_position<="" lpic_id="" th="" {=""><th>-) { position position</th><th>2 BYTES 2 BYTES 2 BYTES</th></n;>	-) { position position	2 BYTES 2 BYTES 2 BYTES
~ ~		

Ipic_id
 I PICTURE IDENTIFIER (TO IDENTIFY I PICTURES)
 first_packet_position: THE FIRST PACKET POSITION OF THE I PICTURE
 (THE NUMBER OF TS PACKETS COUNTED FROM THE BEGINNING OF THE FILE)
 last_packet_position: THE LAST PACKET POSITION OF THE I PICTURE
 (THE NUMBER OF TS PACKETS COUNTED FROM THE BEGINNING OF THE FILE)